

S/N 10/775,462

Atty Dkt No. GP-304042/GM0456PUS

Remarks

Claims 1-15 are pending in the application. Claims 1-5 are allowed. Claims 6-9 and 14 are rejected under 35 U.S.C. § 102(b) as being anticipated by United States Patent No. 4,395,925 (Gaus). Claims 6, 8 and 10-15 are rejected under U.S.C. § 102(e) as being anticipated by United States Patent No. 6,634,980 (Ziemer). Claims 6, 7, 8, 14 and 15 are found to be in conflict with claims 5, 6, 7, 13 and 14 of Application No. 10/775,437 (now issued as United States Patent No. 6,949,048).

Section 102(b) Rejections

Claim 6 requires in part:

an input shaft;
an output shaft;
a planetary gear arrangement having first, second and third planetary gear sets, each planetary gear set having first, second and third members;
said input shaft being continuously interconnected with a member of the planetary gear sets, ... (emphasis added)

“[T]he planetary gear sets” referred to in the last clause above must necessarily be the “first, second and third planetary gear sets”. The Examiner finds that Gaus discloses:

a transmission having an input shaft (3), an output shaft (12), a first (8, 18), second (11) and third (14) planetary gear sets having first, second and third members, the input shaft being continuously connected to a member (6) of the gear sets, the output shaft being continuously connected to a member (20-22) of the gear sets, a first continuous connection between the first member (15) of the first gear set and the first member (16) of the second gearset, a second continuous connection between the second member (20) of the first gear set and a first member (22) of the third gear set, a third continuous connection between the

S/N 10/775,462

Atty Dkt No. GP-304042/GM0456PUS

second member (25) of the second gear set and a second member (26) of the third gear set, a third continuous connection between the second member (25) of the second gear set and a second member (26) of the third gear set and seven torque transmitting mechanisms (Figure 2) being engaged in combinations of two to establish at least eight forward speed ratios and one reverse.

(Office Action, pages 2-3)

Gaus teaches with respect to Figure 1 thereof:

The input shaft 3 is connected to a ring gear 6 of an input transmission generally designated by the reference character VS. The input transmission VS may be connected through a first torque transmission train generally designated by reference numeral 8 starting from the planetary gear carrier 7 thereof and through a second torque transmission train generally designated by the reference numeral 10 starting from the sun gear 9 thereof to a main transmission generally designated by the reference numeral 11.

The main transmission 11 consists of a Simpson set generally designated by the reference numeral 13 and of a one-web planetary gear reversing transmission generally designated by the reference numeral 14.

The coupling shaft of sun gear 15 and 16 of the Simpson set 13 is connected to a driving drum 17 which extends over the forward planetary gear generally designated by reference numeral 18 of the Simpson set 13 and is adapted to be braked by a gear shift brake generally designated by reference character B₂ or is adapted to be connected by a reverse gear clutch generally designated by reference character K_{3/R} with the torque transmission train 8.

The torque transmission train 8 is connected through a forward speed clutch generally designated by reference character KV to a ring gear 19 of the forward planetary gear 18, whose planetary gear carrier 20 is connected to the output shaft

S/N 10/775,462

Atty Dkt No. GP-304042/GM0456PUS

12. The output shaft 12 is additionally connected to the ring gears 21 and 22 of the rear planetary gear generally designated by reference numeral 23 of the Simpson set 13 and of the reversing gear transmission 14.
(column 4 lines 5-14, 20-41)

Thus, Gaus teaches that input transmission VS includes sun gear 9, ring gear 6 and planetary gear carrier 7. Gaus further teaches that the Simpson set 13 includes the sun gears 15 and 16, the planetary gears 18 and 23 and the ring gears 19 and 21. Finally, Gaus teaches a reversing gear transmission that includes sun gear 26, planet gear carrier 29 and ring gear 22.

The Examiner lumps the first torque transmission train 8 and the forward planetary gear 18 together as the "first planetary gear set" of claim 1, and uses components of both to satisfy the requirements for anticipation of claim 1. Specifically, the Examiner uses the ring gear 6 of Gaus input transmission VS as the member satisfying the requirement in claim 6 for "said input shaft being continuously interconnected with *a member* of the planetary gear sets" (emphasis added). Gaus then uses the sun gear 15 of Simpson set 13 as "a first member of said first planetary gear set" to satisfy the requirement of claim 6 for "a first interconnecting member continuously interconnecting said first member of said first planetary gear set with said first member of said second planetary gear set." Additionally, the Examiner uses Gaus' planet gear carrier 20 as "said second member of said first planetary gear set" to satisfy the requirement of claim 6 for "a second interconnecting member continuously interconnecting said second member of said first planetary gear set with said first member of said third planetary gear set."

Applicants submit that those of ordinary skill in the art would not understand Gaus' first torque transmission train 8 (including ring gear 6, sun gear 9 and carrier gear 7) and the transmission train including ring gear 19, sun gear 15 and carrier gear 20 to be a "planetary gear set" as required by claim 6. As set forth in paragraph [0008] of the Specification:

...the family of transmissions has three planetary gear sets, each of which includes a first, second and third member, which members may comprise a sun gear, a ring gear or a planet carrier assembly member.

S/N 10/775,462

Atty Dkt No. GP-304042/GM0456PUS

Those of ordinary skill in the art would understand a compounded set, such as Gaus' Simpson set, consists of compounded together with two interconnecting members to be a "planetary gear set" as used in the claims. However, a person of ordinary skill in the art would not understand Gaus' first torque transmission train 8 (including ring gear 6) and the sun gear 15, planetary gear 18 and ring gear 19 to be a "planetary gear set" where none of the members of the torque transmission train 8 are interconnected with the members 15, 18 or 19. The Examiner may look to the torque transmission train 8 *or* to the Simpson set 13 to determine if the "first planetary gear set" required by claim 6 is disclosed, but cannot consider *both* to be the "first planetary gear set." Thus, because Gaus' input shaft 3 is continuously connected with ring gear 6 of the torque transmission train 8 and the first interconnecting member and second interconnecting member recited above by the Examiner interconnect members of Gaus' Simpson set 13 to members of still other planetary gear sets, the input shaft 3 of Gaus cannot be said to be "continuously interconnected with a member of said planetary gear sets" as required by claim 6. For at least this reason, the Section 102(b) rejection of claims 6-9 and 14 is believed to be overcome.

For purposes of clarification only, claim 6 is amended to specify that the first, second and third members of each of the first, second and third planetary gear sets are "coaxial." This amendment does not present new matter, as each of the planetary gear sets 20, 30, 40 etc. presented in Figures 1a through 11a of the present Application are clearly illustrated with coaxial members. Gaus' ring gear 6 and sun gear 15 are not coaxial, nor are Gaus' ring gear 6 and planet gear carrier 10. Thus, these members cannot be the claimed "first, second and third member" of the "first planetary gear set" recited in claim 1. For at least this reason as well, the Section §102(b) rejection of claims 6-9 and 14 is believed to be overcome.

Section 102(e) Rejections

The Examiner rejects claims 6, 8 and 10-15 under Section 102(e) as anticipated by Ziemer. It is difficult to ascertain which of Ziemer's transmission embodiments the Examiner is referring to in the Office Action, because the Examiner finds that:

S/N 10/775,462

Atty Dkt No. GP-304042/GM0456PUS

Zierner discloses a transmission having an input shaft (1), and output shaft (2), first (RS1), second (RSA) and third (RSB, RS4, RS3) planetary gear sets...

and Applicants find no gear sets "RSA" or "RSB" within Zierner. However, based on the components recited by the Examiner, Applicants believe the Examiner to be referring to the embodiment of Figure 10B. With respect to Zierner's output shaft 2, the Examiner finds "the output shaft being continuously connected to a member (35) of the gear sets" to satisfy the claim 6 requirement "said output shaft being continuously interconnected with another member of said planetary gear sets".

Applicants note that Zierner's output shaft 2 is connected with carrier 35 of gear set RS3 in Figure 10A. This connection cannot satisfy the requirements of claim 6 that "the output shaft [is] continuously connected with another member of the planetary gear sets" (planetary gear sets referring to the previously recited "first, second and third planetary gear sets") because gear set RS3 cannot be considered one of gear sets RS1, RS2a, and RS2b, which the Examiner recites as being the first, second and third planetary gear sets, respectively, in finding the first, second and third interconnecting members of claim 6. For instance, one of ordinary skill in the art would not consider the carrier 35 of gear set RS3 to be a member of the gear set RS1, which the Examiner refers to as the "first planetary gear set" in finding the claimed "first interconnecting member continuously interconnecting said first member of said first planetary gear set and said first member of said second planetary gear set" (interconnecting carrier 15 with carrier 25a). Neither would one of ordinary skill in the art consider carrier 35 to be a member of gear set RS2b, which the Examiner referred to as the "third planetary gear set" in finding the claimed "second interconnecting member continuously interconnecting said second member of said first planetary gear set with said first member of said third planetary gear set" (interconnecting internal gear 13 with sun gear 21b), or the claimed "third interconnecting member continuously interconnecting said second member of said second planetary gear set with said second member of said third planetary gear set" (interconnecting ring gear member 23a and ring gear member 23b). The Section 102(e) rejection of claim 6 and of claim 8 and 10-15 which depend therefrom is believed to be improper at least for this reason.

S/N 10/775,462

Atty Dkt No. GP-304042/GM0456PUS

Additionally, the Examiner finds grounded internal gear 13 and grounded sun gear 21b to satisfy "a second continuous interconnection between the second member (13) of the first gear set and a first member (21b) of the third gear set." (Office Action, page 3). Ziemer's grounded members 13 and 21b cannot be considered "continuously interconnected" to satisfy the requirement of claim 6 for:

a second interconnecting member continuously interconnecting said second member of said first planetary gear set with said first member of said third planetary gear set[.]

No "continuous interconnection" is established between the internal gear 13 and the sun gear 21b by grounding both of these members. The Section 102(e) rejection of claim 6 and of claims 8 and 10-15 which depend therefrom is believed to be improper at least for this reason as well.

In any event, with the amendment to claim 6 to clarify that each planetary gear set of claim 6 has "first, second and third *coaxial* members" the Section 102(e) rejection of claim 6 and of claims 8 and 10-15 which depend therefrom is believed to be overcome. Carrier member 35 of gear set RS3 is not coaxial with carrier 25b" or with ring gear member 23b, the other members of the Examiner's "third (RSB, RS4, RS3) planetary gear set." Accordingly, carrier member 35 may not be considered a "member of the planetary gear sets" within claim 6.

With respect to the Examiner's rejection of claims 8 and 10-13, each required finding a member of RS4 as RS3 to be a member of the "third gear set." These findings are based on the Examiner's lumping of gear set RS2b with gear set RS4 and gear set RS3 as one "planetary gear set" As explained above, a person of ordinary skill in the art would not understand RS2b, RS3 and RS4 to be one "planetary gear set" within the scope of the claims. Thus, the Examiner may not choose selected members of these *three separate planetary gear sets* to satisfy the requirements of claims 8 and 10-13 with respect to members of a *third planetary gear set*. The Section 102(e) rejection of claims 8 and 10-13 is believed to be overcome at least for this reason as well.

S/N 10/775,462

Atty Dkt No. GP-304042/GM0456PUS

Double Patenting Rejection

Because Application No. 10775,437 is now issued Patent No. 6,949,048, the requirement of 37 C.F.R. § 1.78b regarding elimination of claims is no longer applicable. In any event, the claim 6 is amended to include the following limitation of claims 7-9, which are cancelled:

“wherein a first of said seven torque-transmitting mechanisms is operable for selectively interconnecting a member of said first or second planetary gear set with said stationary member, wherein a second of said seven torque-transmitting mechanisms is operable for selectively interconnecting a member of said second or third planetary gear set with said stationary member, wherein a third of said seven torque-transmitting mechanisms is selectively operable for interconnecting a member of said second or third planetary gear set with said stationary member.”

These limitations require that the first, second and third torque-transmitting mechanisms of the transmission of claim 6 are brakes. Because none of claims 5-7 and 13-14 of United States Patent No. 6,949,048 recite three torque-transmitting mechanisms that are brakes, no double patenting issue exists.


Conclusion

In light of the amendments to the claims and the arguments set forth above, the rejection under Section 102(b), Section 102(e) as well as the double patenting conflict are believed to be overcome. Remaining claims 6 and 10-15 are believed to be in condition for allowance along with allowed claims 1-5, which action is hereby respectfully requested.

Respectfully submitted,

Patrick B. Usoro, et al.

By


Jean M. McCarthy
Reg. No. 54,300

S/N 10/775,462

Atty Dkt No. GP-304042/GM0456PUS

Date: _____

QUINN LAW GROUP, PLLC
39555 Orchard Hill Place, Ste. 520
Novi, Michigan 48375
Phone: 248-380-9300
Fax: 248-380-8968

On behalf of:

Kathryn A. Marra
GENERAL MOTORS CORPORATION
Legal Staff Mail Code 482-C23-B21
P.O. Box 300
Detroit, Michigan 48265-3000